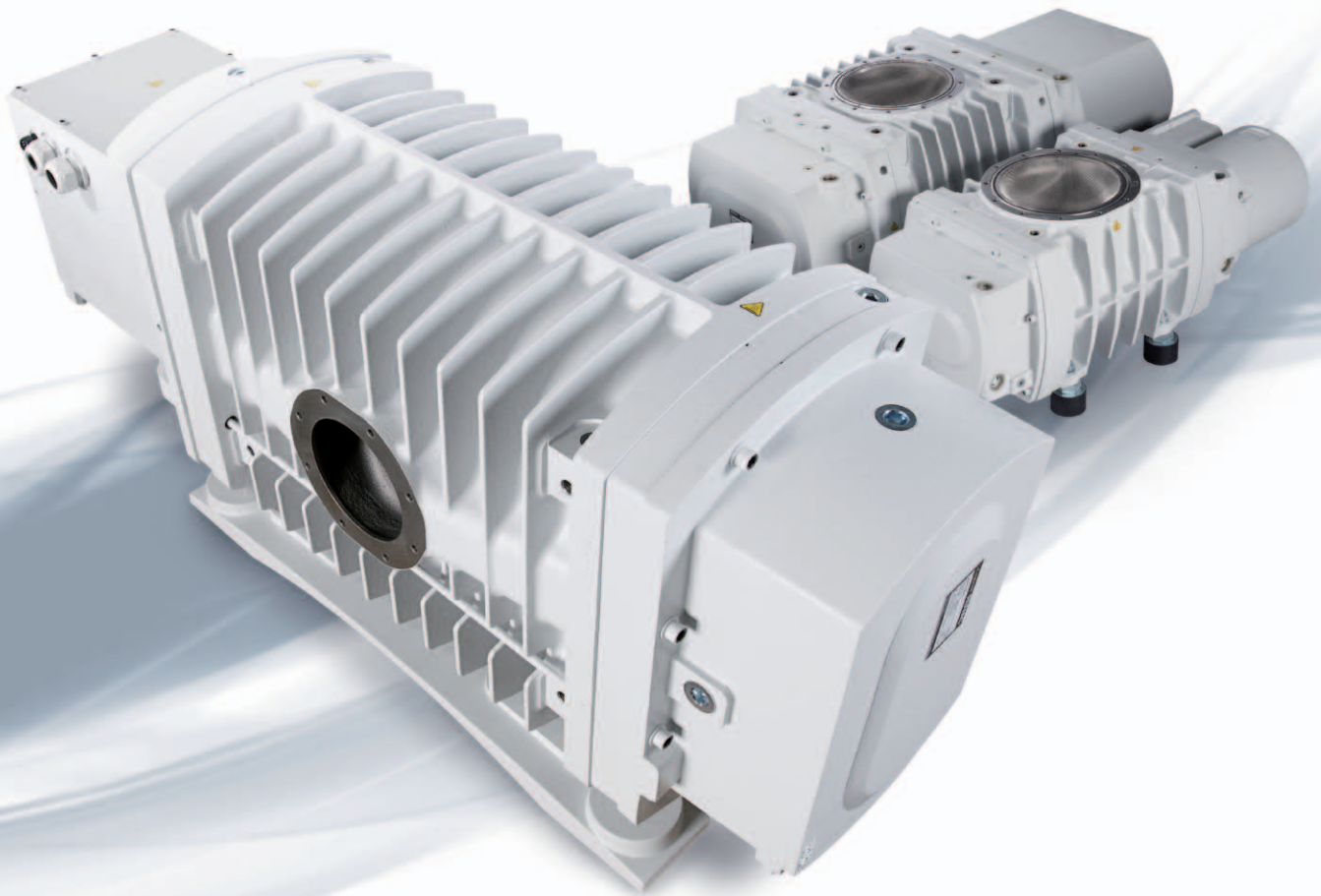


RUVAC[®] WH / WHU **Roots Pumps** Efficient and reliable



RUVAC WH

Best price-to-performance ratio

by increased pumping speed when using a frequency converter

PRICE

Low operating costs

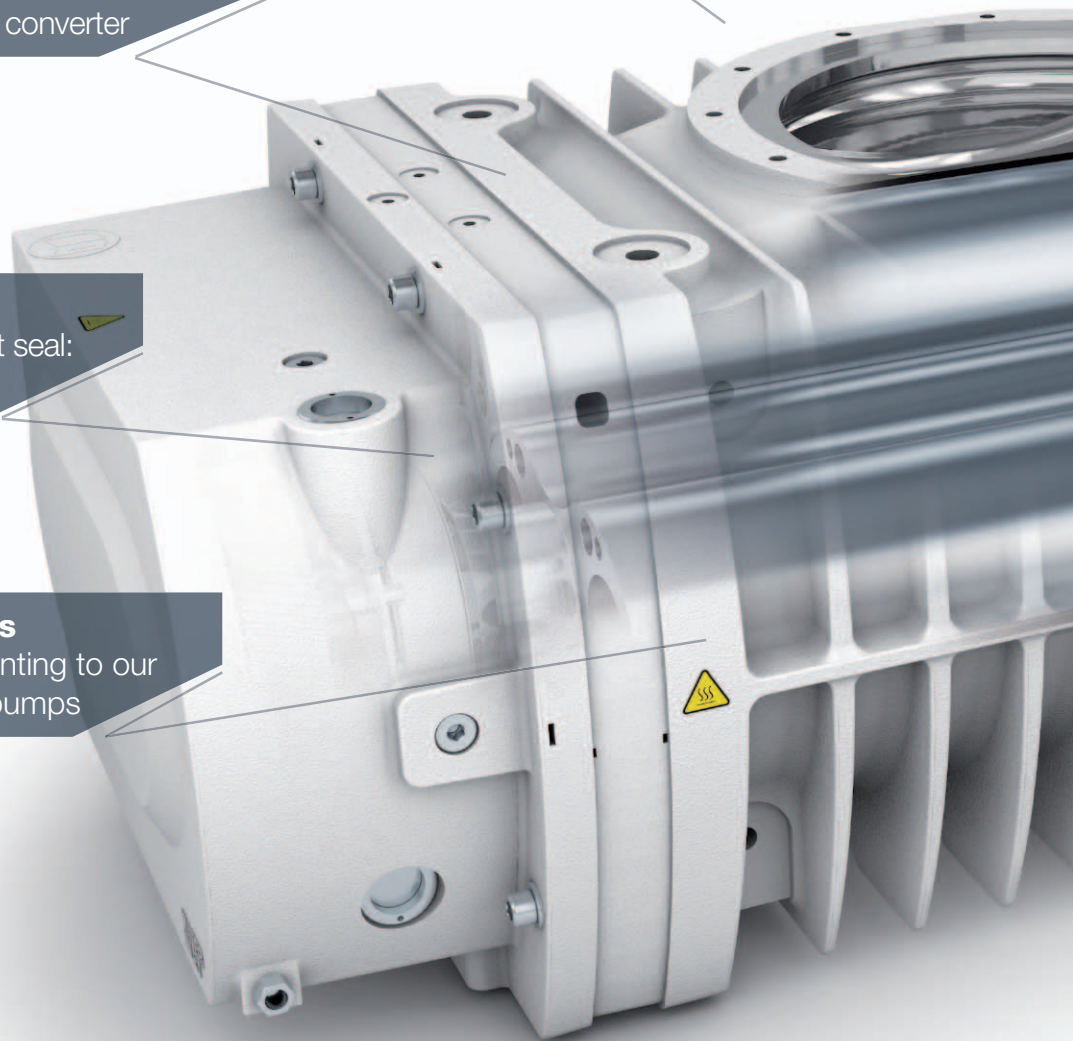
through the power-saving drive unit in combination with a frequency converter

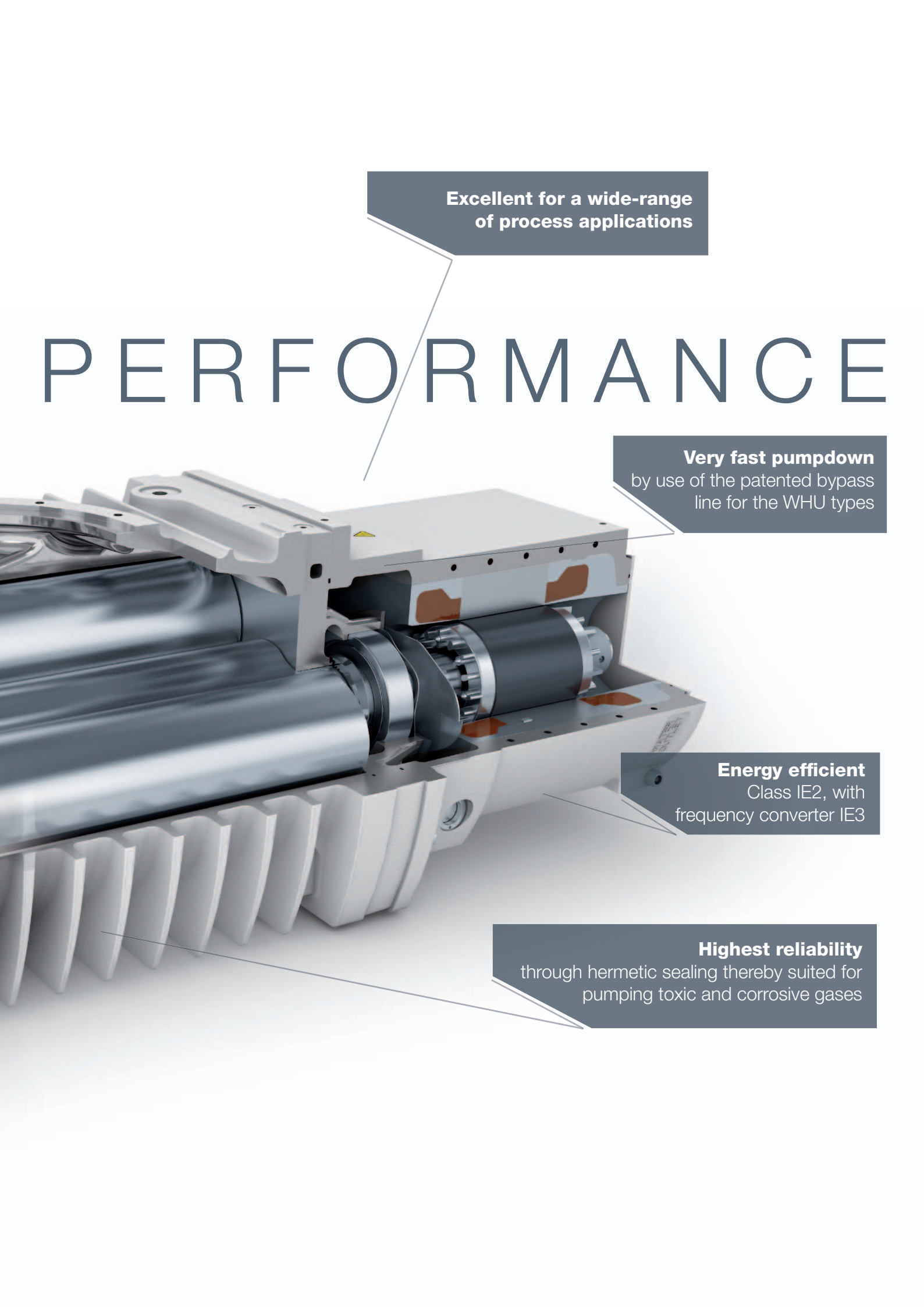
Low life-cycle costs

due to the elimination of the shaft seal:
4 years without any servicing

Low investment costs

through easy direct mounting to our existing line of backing pumps





**Excellent for a wide-range
of process applications**

PERFORMANCE

Very fast pumpdown
by use of the patented bypass
line for the WHU types

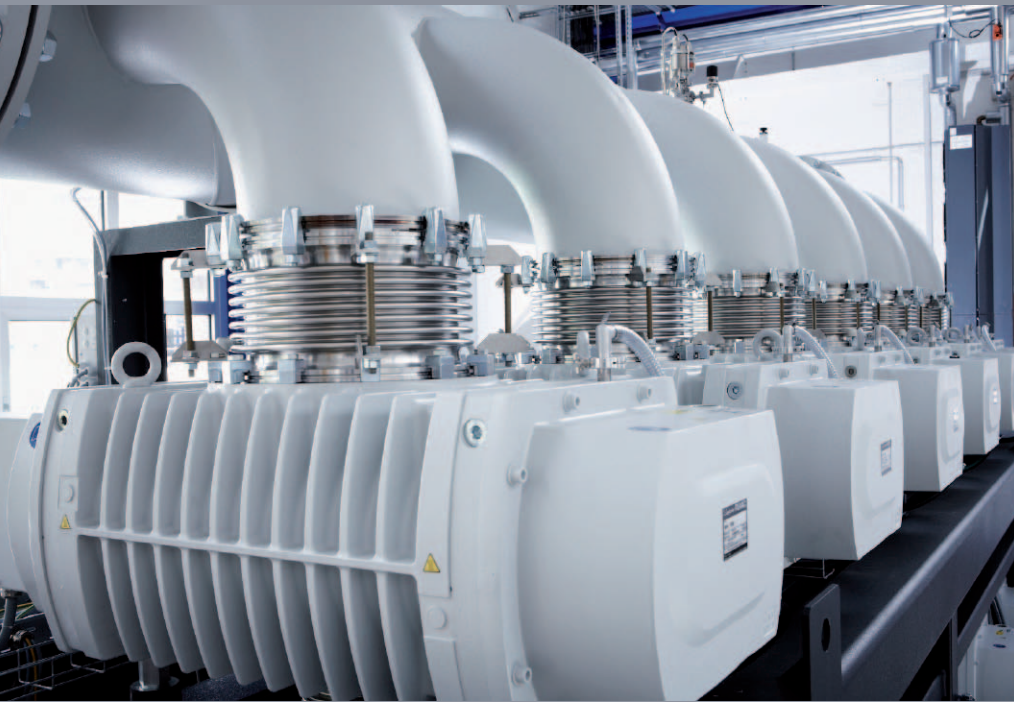
Energy efficient
Class IE2, with
frequency converter IE3

Highest reliability
through hermetic sealing thereby suited for
pumping toxic and corrosive gases

The RUVAC WH will help to make your process more reliable and cost efficient.

The ideal partner for more

RUVAC WH Roots pumps attain the highest pumping speeds and best ultimate pressures with maximum safety in combination with dry compressing vacuum pumps from the DRYVAC, SCREWLINE, and LEYVAC line, or the oil-sealed vacuum pumps of the SOGEVAC line.



Design and Advantages

The RUVAC WH line includes a number of engineering innovations ensuring a long service life with minimum maintenance complexity.

Water cooling advantages

The concept of the hermetically sealed, water cooled motor permits optimum cooling resulting in a very high motor efficiency.

Water cooling at the motor permits extreme high motor loads and at the same time high protection against overloads. Apart from a reduced pumpdown time, noise and heat emissions are reduced and the pump is therefore cleanroom compatible.

Moreover, water cooling significantly reduces the oil temperature, resulting in improved lubricating properties thereby guaranteeing a long service life for the bearings.



performance and throughput ...

System integration, made easy

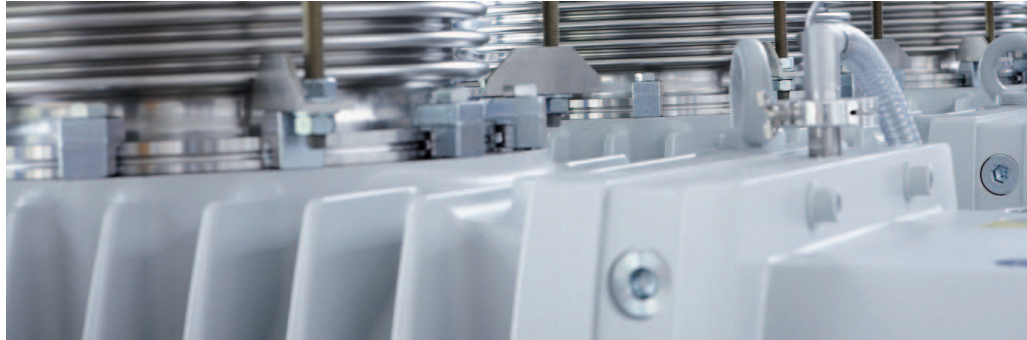
The smart design of the pumps with their reduced exhaust flange permits the configuration of different pump combinations without an additional mounting frame. Since the pumps are connected to each other only with an adapter, both investment costs and as well as the system's footprint are reduced significantly.

Even faster with bypass line

The RUVAC WHU line was developed for extremely fast pumpdown of load-lock chambers, for example.

The utilization of a patented bypass line permits a high additional pumping speed starting at atmospheric pressure thereby significantly reducing pumpdown time.

This is significantly faster compared to the utilization of a frequency converter since the pump mechanically controls the pumping speed at full speed of the pump.



No shaft seal, the pump is hermetically sealed

Therefore no shaft seal is needed. This prevents oil leaks and increases safety significantly while pumping sensitive media.

Motor ensures a long service life

The integration of a potted water cooling facility protects the motor against external and internal influences.

The lower operating temperature compared to air-cooled motors in combination with the built-in coil protection ensures a long service life.

When using the recommended lubricant, the pump will operate for 4 years without any service needed.





Frequency converters optimize the performance

RUVAC WH pumps deliver best performance due to the specially matched frequency converter.

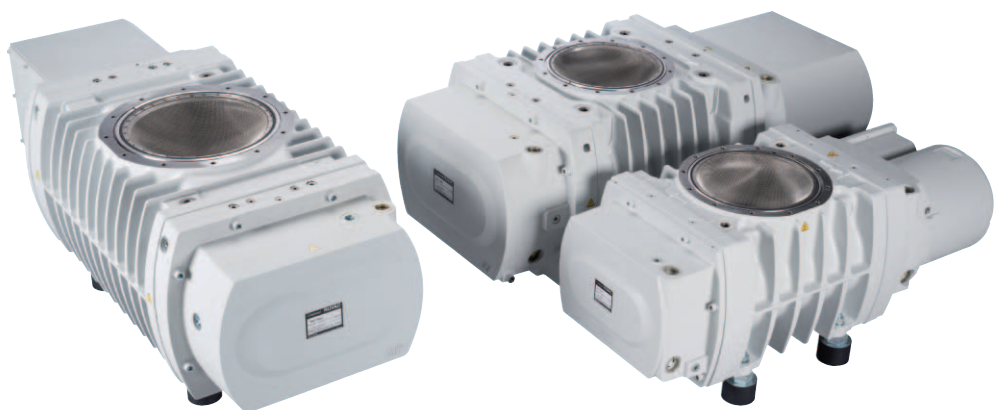
The integrated frequency converter optimizes the necessary power consumption and provides the required pumping speed for the variants RUVAC WH 2500 FC, RUVAC WHU 4400 and RUVAC WH 700. Moreover, it protects the Roots pump against thermal overloads, thereby rendering it intrinsically safe.

Using a frequency converter enables the RUVAC WH to support the backing pump in starting at atmospheric pressure. Increasing the rotational speed results in an enhanced pumping speed even at low pressures. This leads to very short pumpdown times and a high process gas throughput.

Advantages

- Increased process gas throughput due to significantly enhanced rotational speed
- Reduced pumpdown time due to operation starting at atmospheric pressure in connection with increased pumping speed at dropping pressures
- Highest operational reliability through parameter matching to the thermal limit of the pump
- Pump protection in the event of a cooling water failure through processing the signal of a thermal sensor
- Saving of power through optimized motor utilization at the operating point
- Energy saving by reducing the speed during standby operation
- Flexible matching to the requirements of your specific vacuum application
- Easy electrical integration through digital and analog interfaces; industrial bus systems are optionally available

The frequency converter contributes significantly to increased reliability at a favourable price-to-performance ratio.



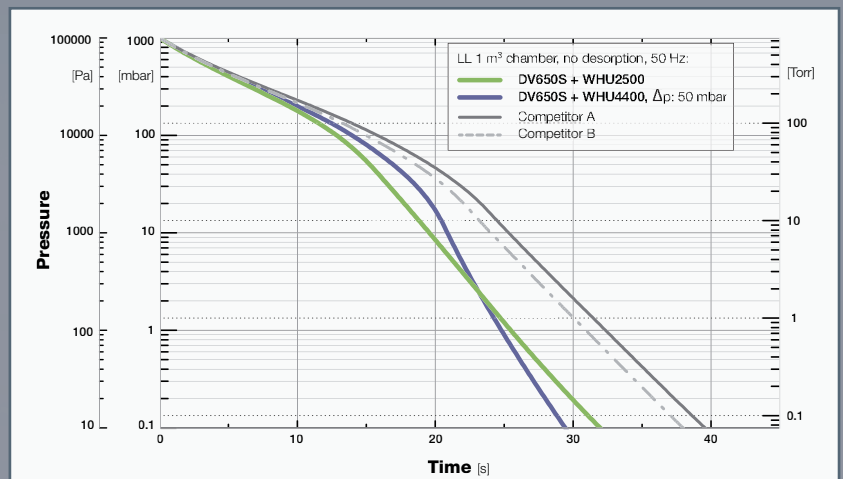
... no service demand within 4 years!

Application flexibility

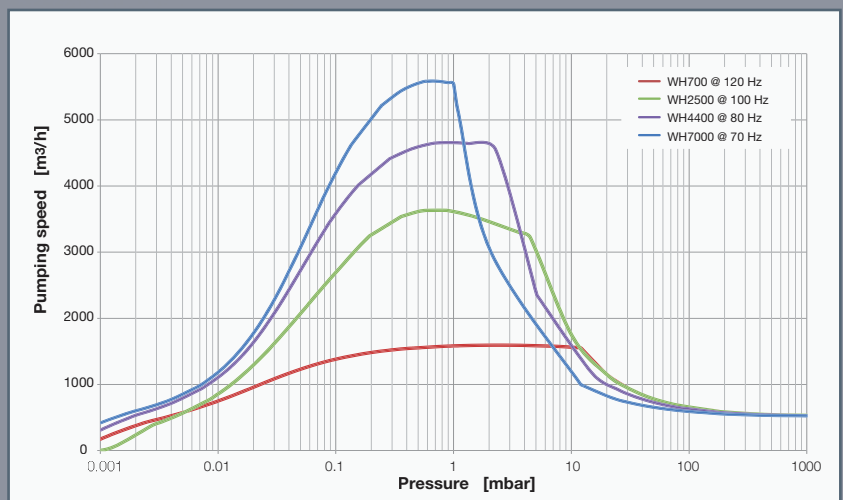
The RUVAC WH line offers its advantages in all vacuum applications. It excels through extreme ruggedness and durability thereby meeting the requirements of industrial applications. At the same time it fulfills the requirements of solar and coating processes where lowest life-cycle costs, highest system availability and low emissions are required.

Your Benefits:

- **Low investment costs**
through direct adaptation to our line of backing pumps
- **Best price-to-performance ratio**
by increased pumping speed when using a frequency converter
- **Low operating costs**
through the power-saving drive unit in combination with a frequency converter
- **Low life-cycle costs**
due to the elimination of the shaft seal: 4 years without any servicing
- **Highest reliability**
 - complete pump protection by the motor concept and the matched frequency converter
 - hermetic sealing thereby suited for pumping toxic and corrosive gases
- **Very fast pumpdown**
by use of the patented bypass line for the WHU types
- **Excellent process adaptation**
and control integration using a frequency converter
- **Optimum system integration**
through reduced installation space
- **Favourable ambient conditions**
by significantly reduced noise and heat emissions



Competitor comparison: RUVAC/DRYVAC combinations with load lock chamber



Pumping speed of RUVAC WH in combination with DRYVAC DV650 S

Technical Data

Ordering information

RUVAC		WH 700			WH(U) 2500				WH(U) 4400			WH(U) 7000		
		50 Hz	60 Hz	120 Hz*	50 Hz	60 Hz	80 Hz	100 Hz*	50 Hz	60 Hz	80 Hz	50 Hz	60 Hz	70 Hz
Nominal pumping speed acc. to DIN28426	m ³ · h ⁻¹	710	860	1730	2500	3000	4000	5000	4400	5280	7040	7000	8400	9800
Max. permissible pressure difference (Δp) in continuous operation	mbar	75	65	50	50-75	40-60	40-60	20	45	30	12	30	21	14
Nominal motor power	kW	2.2	2.6	3.5	6.5	7.5	-	-	11/18.5			11/18.5		
Mains voltage	V	200-480			380-530	340 - 530			400 ¹⁾	480 ¹⁾	FC	400 ¹⁾	460 ¹⁾	FC
Protection class acc. to EN 60529	IP	54			54				54			54		
Noise level acc. to DIN EN ISO 2151	dB(A)	< 56 ³⁾			< 63 ³⁾				< 63 ³⁾			< 63 ³⁾		
Cooling water connections		G 1/4"			G 1/4"				G 1/4"			G 1/4"		
Cooling water quantity	l/h	60 - 180			60 - 180				180 - 300			180 - 300		
Lubricant quantity	l	0.9			1.2				4.75			4.75		
Connection flanges (DIN 2501, ND 6) inlet/exhaust	ISO-K	DN 100 / 65			DN 250 / 100				DN 250 / 160			DN 320 / 160		
Weight with standard pump feet WH/WHU	kg	120			430				590 / 620			650 / 715		
Dimensions 2) (W x H x D)	mm	709 x 265 x 270			1076 x 570 x 354				1180 x 415 x 540			1430 x 415 x 540		

*) max. frequency

¹⁾ 200 V optionally available for the 11 kW version

²⁾ for WH models in standard delivery condition with a vertical gas flow. Height information indicate flange distance without feet.

³⁾ at 50 Hz operation under ultimate pressure conditions. Higher rotational speeds and pressure levels over 10 mbar result in higher noise levels.

Ordering Information*

RUVAC	WH 700	WH(U) 2500	WH(U) 4400	WH(U) 7000
Equipment configuration	P/N	P/N	P/N	P/N
WH models with standard oil LVO 210	155 205V	155 252V	155 150	155 160
WH models with PFPE oil LVO 400 ⁴⁾	155 207V	155 250V	155 155	155 165
WHU models with standard oil LVO 210 and integrated bypass line	-	-	155 158V	155 162
WHU models with PFPE oil LVO 400 and integrated bypass line	-	155 280V	155 153	-
Accessories				
External gear box evacuation kit	-	internal	155 183V	155 183V
Frequency converter for 400 V	155 117V	internal	155 191V	155 191V

* Selection from the product range. Further model versions, motor tensions and accessories, like frequency converters or oil fillings upon request.

⁴⁾ discharge flange at the gear side

Oil fillings: LEYBONOL LVO 210 ester oil, LEYBONOL LVO 400 PFPE

For detailed information on our full scope of RUVAC pumps, please refer to our general catalog.

Visit our webshop www.leyboldproducts.com.

Please contact us for more technical details on the entire WH / WHU series.

Leybold

Leybold GmbH
Bonner Str. 498 · D-50968 Köln

T +49 (0) 221-347-0
F +49 (0) 221-347-1250
info@leybold.com

www.leybold.com

